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EXAMINER

LY, NGHI H

ART UNIT	PAPER NUMBER
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2617

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



Art Unit: 2617

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-7, 11-15 and 19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1-7, 11-15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al (US 6,101,399) in view of Andreasson et al (US 5,963,854).

Regarding claims 1, 11 and 19, Raleigh teaches a base station of a cellular telecommunication system (see Abstract and fig.2A), comprising: an antenna unit for radio frequency reception and transmission (see fig.2A, antenna 56), an electronically diplexer connected to the antenna unit for separating a transmit radio frequency band from a receive radio frequency band (see fig.2A, diplexer 58, column 3, lines 49-55 and column 5, lines 5-8), a range of the electronically diplexer covering at least two radio frequency sub-bands used parallel in a telecommunication system (see column 5, lines 24-26 and column 8, lines 43-46, see "*different uplink and down link frequencies*"), the electronically diplexer, on site, to a radio frequency subband allocated to a base station (see column 3, lines 33-55), a transceiver connected to the electronically diplexer for performing a conversion between a fixed frequency band and the radio frequency sub-band allocated to the base station (see fig.3, boxes 112, "*complex downconverter*" and 160, "*complex upconverter*"), and wherein the transceiver includes a signal conversion chain for performing at least a portion of the conversion (see column 23, lines 1-17 and (see fig.3, boxes 112, "*complex downconverter*" and 160, "*complex upconverter*"), at least a portion of the signal conversion chain being shared between frequencies (see column 5, lines 24-26 and column 8, lines 43-46, see "*different uplink and down link frequencies*" and see column 8, lines 22-51 see column 11, lines 26-37).

Raleigh does not specifically disclose a tuning range of the electronically tunable diplexer covering at least two radio frequency sub-bands used parallel in a telecommunication system a range of the electronically tunable diplexer covering at least two radio frequency sub-bands used parallel in a telecommunication system, the electronically tunable diplexer being tunable, on site, to a radio frequency subband allocated to a base station, and at least a portion of the signal chain being shared between frequencies within the tuning range.

Andreasson teaches a tuning range of the electronically tunable diplexer covering at least two radio frequency sub-bands used parallel in a telecommunication system a range of the electronically tunable diplexer covering at least two radio frequency sub-bands used parallel in a telecommunication system (see Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8), the electronically tunable diplexer being tunable, on site, to a radio frequency subband allocated to a base station (see Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8), and at least a portion of the signal chain being shared between frequencies within the tuning range (also see column 3, lines 45-58 and column 4, line 64 to column 5, line 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Andreasson into the system of Raleigh in order to provide an improved antenna amplifier (see column 1, lines 40-42).

Regarding claims 2 and 12, the combination of Raleigh and Andreasson further teaches the electronically tunable diplexer is configured to operate in a receive tuning

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range covering receive sub-bands of at least two system bands, the electronically tunable diplexer being tunable (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8), on site, to a receive sub-band allocated to the base station (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8).

Regarding claims 3 and 13, the combination of Raleigh and Andreasson further teaches the electronically tunable diplexer is configured to operate in a transmit tuning range covering transmit sub-bands of at least two system bands (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8), the electronically tunable diplexer being tunable (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8), on site, to a transmit sub-band allocated to the base station (also see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8).

Regarding claims 4 and 14, the combination of Raleigh and Andreasson further teaches the electronically tunable diplexer is configured to operate in a receive tuning range covering at least two receive sub-bands of a system band, the electronically tunable diplexer being tunable (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8), during operation, to a receive sub-band allocated to the base station (also see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8).

Regarding claims 5 and 15, the combination of Raleigh and Andreasson further teaches the electronically tunable diplexer is configured to operate in a transmit tuning

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range covering at least two transmit sub-bands of a system band, the electronically tunable diplexer being tunable (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8), during operation, to a transmit sub-band allocated to the base station (also see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8).

Regarding claim 6, the combination of Raleigh and Andreasson further teaches the electronically tunable diplexer is tunable, on site, to provide a passband narrower than a system band allocated to the base station (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8).

Regarding claim 7, the combination of Raleigh and Andreasson further teaches a control unit connected to the electronically tunable diplexer and the transceiver for controlling frequency characteristics of the base station (see Andreasson, Abstract, column 3, lines 45-58 and column 4, line 64 to column 5, line 8).

#### ***Allowable Subject Matter***

5. Claims 8-10 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 8-10 and 16-18 are objected for the reasons as stated in the previous Office action (pages 5-6, dated 11/15/05)


**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghi H. Ly whose telephone number is (571) 272-7911. The examiner can normally be reached on 8:30 am-5:30 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nghi H. Ly



CHARLES APPIAH  
PRIMARY EXAMINER